

USPN. 09/630,732  
Examiner: IP, S  
Group A.U.: 2837  
January 22, 2002

### Remarks

It is observed that the Examiner considered claims 1-3 and 9-14 as being anticipated by Beckerman or Reynolds.

Claims 4-8 were instead rejected as being unpatentable over Beckerman or Reynolds in view of Studtmann.

Accordingly, the applicant has amended claims 1, 2 and 14 in order to better define the present invention.

It is observed that the present invention relates to a permanent magnet synchronous motor and has the main aim of devising an electronic power supply that allows to eliminate vibrations and consequent noise from the motor. The applicant's claimed arrangement has this purpose and does not perform any speed control for the motor.

This aim is achieved by means of an arrangement which contemplates, for each pair of poles, a capacitor acting as a 90 degrees phase shifter and a static switch that is controlled by means for detecting the position of the rotor of the synchronous motor.

Thus, the aim of the applicant's claimed invention is that of driving a synchronous motor with an electronic device that is both simple and reliable.

The use of means for detecting the position of the rotor, in real time, is a key factor to drive the static switch, i.e. to close the static switch and thus supplying power to the windings only when the sign of the half-wave of the power supply voltage is such as to generate a stator field that is favorable for the intended rotation direction of the rotor.

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This means that the sensor position for the rotor is an essential element for the driving logic of the motor according to the present invention.

Turning now to Beckerman, it is submitted that such document does not relate to a permanent magnet synchronous motor, but to a single phase Ac induction motor which is a completely different type of motor and does not have permanent magnets.

As it is commonly known, an induction motor is an asynchronous motor that does not have the need of knowing the rotor position. The circuit of Beckerman is used to control the speed of the motor and no rotor position sensor means are provided. On the other hand, the rotor position sensor would not have any meaning in the circuit of Beckerman which is devoted to control the speed of the motor.

In summary, the circuit of Beckerman would not be able to drive the permanent magnet synchronous motor of the applicant's invention in the same way as the applicant's claimed arrangement would not be able to control the speed of the motor of Beckerman, also taking into account that such speed control is performed by Beckerman by sensing the back e.m.f. in the main winding to provide a measure of speed of the rotor.

The back e.m.f. is never taken into account in the applicant's claimed circuit.

As far as Reynolds is concerned, the applicant respectfully observes that also in this case the motor involved is an asynchronous motor, as in Beckerman, and, as such, does not relate to the same field of the applicant's invention.

In addition, Reynolds does not disclose any rotor position sensor means and consequently the static switch is not driven by a signal derived by a rotor sensor position.

The applicant has also examined all of the documents cited by the Examiner, together with the documents sent to the Examiner with the Information Disclosure

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Statement and no pertinent documents have been found.

In view of the above reconsideration of the amended claims is respectfully requested.

It will be noted that a sincere effort has been made to positively respond to all of the points raised by the Examiner.

While it is believed that the amended claims properly define the present invention, applicant would be open to any suggestion the Examiner may have concerning different claim phraseology which, in the Examiner's opinion, more accurately defines the present invention.

Respectfully submitted,



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